OPEN ACCESS

ORIGINAL ARTICLE

Comparison of Breast-Feeding Positions Related to Neck Pain Among Lactating Mothers

Umara Iftikhar Rana[1], Amina Irfan[2], Sumbal Saleem[3], Iqra tul Hussain[4], Nirmal Zahid [5], Zainab Waheed [6]

[1,2]Demonstrator at Sialkot Medical College, Imran Idrees Institute of Rehabilitation Sciences, Sialkot, Pakistan
[3]Physiotherapist at Genesis Health care consultants. , Sialkot, Pakistan
[4]Senior Lecturer at Sialkot Medical College, Imran Idrees Institute of Rehabilitation Sciences, Sialkot, Pakistan
[5]Physiotherapist & House Office Officer in Social Security Hospital, Sialkot, Pakistan
[6]Clinical physiotherapist at Ashraf clinic, Lahore, Pakistan

Author`s Contribution

[1 2 3] Substantial contributions to the conception or design of the work for the acquisition, analysis or interpretation of data for the work, [5 6] Drafting the work or reviewing it critically for important intellectual content, [4]Final approval of the version to be published,

Article Info.

Received: January 15, 2024
Acceptance: July 29, 2024

Conflict of Interest: None
Funding Sources: None

Address of Correspondence

Umara Iftikhar Rana
ammararana325@gmail.com
ORCID: 0009-0001-6046-331X

Cite this article as: Rana UI, Irfan A, Saleem S, Hussain I, Zahid N, Waheed Z. Comparison of Breast-Feeding Positions Related to Neck Pain Among Lactating Mothers. JRCRS.2024;12(3):158-162..
https://dx.doi.org/10.53389/JRCRS.2024120310

A B S T R A C T

Background: Mothers are advised to use the cradle hold and cross-cradle hold positions for breastfeeding (BF) for the benefit of both mother and child.

Objective: This study aimed to compare the breastfeeding positions (cross-cradle hold and cradle hold) related to musculoskeletal neck pain among lactating mothers

Methodology: This comparative cross-sectional study was carried out at Imran Idress Institute of Rehabilitation Sciences, Sialkot from January 2023. A convenient sampling technique was used. The data was collected from 204 lactating mothers of aged 18-40 years. Self-structured section of the questionnaire comprised of demographic and breastfeeding-related features from lactating mothers and Numeric pain rating scale were used to compare the breastfeeding position and musculoskeletal neck pain among lactating mothers. SPSS version 22 was used for data analysis.

Results: The results of this study indicated that the mean age of lactating mothers among participants of group A was 29.83yr ± SD 3.78 and in group B was 28.61yr ± SD 4.76 Independent t-test showed a significant difference of p-value= 0.00 at significance level 0.05 respectively Comparing the means of both groups, lactating mothers with cradle hold Breast feeding position-related MSK neck pain (group A) were more affected than cross cradle hold BF position related MSK neck pain (group B).

Conclusion: This study concluded that MSK neck pain was more affected in cross cradle hold breastfeeding position than the cradle holds breastfeeding position

Keyword: Breast feeding, Cross Cradle, Neck Pain, Lactating Mother.

Introduction

Complementary feeding were essential to provide the nutrients and energy required for growth and development in children with aged 0-23 months. [1,2] The name derives from the fact that the advised extra food nutrients balance out those in breast milk. They work effectively together and each has a certain purpose[1] International organizations like the Health Organization (WHO) and United National Children Emergency Fund (UNICEF) promote exclusive breastfeeding for the six months of life and sustained nursing for the following two years, along with supplemental food [(3,4)]Mothers adopt a supporting position while breastfeeding babies so that they latch on comfortably, in addition, provide better control of breast to allow milk to flow easily. The most common breastfeeding positions included cradle (with the same arm involving the mother sited with her back and feet supported, holding the baby in the crook of her arm, with the infant's face, tummy, and legs facing the mother), cross cradle hold (same and opposite arm; this position was helpful for young new-born since his head was on the mother's palm instead of her arm to lead him towards the breast), Football hold(tuck baby under

the arm on the same side),lean-back(but not flat) after caesarean section and babysitting breastfeeding, twin hold.[5,6]

The cross-cradle hold posture suggested BF position used by many different populations was performed in an upright seated position.[6] The adoption of uncomfortable postures during feeding sessions has frequently been linked to BF-related muscular problems. According to informal information, one of the most typical difficult postures nursing women was assumed unsupported head/neck posture with a resulting continuous neck flexion in an effort to observe the baby while it was nursing. The muscles in the neck and back tend to get sustained by such a prolonged uncomfortable stance and excessive repetition Nursing mothers have been known to get BF-related neck pain (BFRNP) especially if they maintain improper BF postures.[7] For women who had a caesarean delivery, the cradle hold posture, which involves the baby's head and neck resting over the mother's forearm and his body resting against her stomach, was shown to be the most relaxing. Ineffective breastfeeding posture can lead to a variety of health issues, including mechanical neck discomfort, low back pain, brachial plexus pain, carpal tunnel syndrome, kyphosis, lordosis, scoliosis, sciatica, and radiating elbow and wrist pain.[8]Even though it's an adorable experience, improper breastfeeding positions and procedures can be very uncomfortable for both the mother and the child[9] The majority of studies on breastfeeding have mostly focused on evaluating the positive effects of breastfeeding counselling on outcomes that relate to improving breastfeeding habits of women rather than on the nutritional outcomes in infants.[10]

The Main objective of this study was to compare the breastfeeding positions (cross cradle hold and cradle hold) related musculoskeletal neck pain among lactating mothers. Self-structured questionnaire and numeric pain rating scale were used.

Methodology

The institutional ethical approval was obtained from 'The institutional ethical review committee of Imran Idrees Institute of Rehabilitation Sciences, Sialkot' (IIIRS/DPT/PRI/IRB-680) for this comparative cross-sectional study which was conducted from January to June 2023. Study settings were the gynecology outdoor patient departments of Allama Iqbal Memorial Teaching Hospital Sialkot and Christian Memorial Teaching Hospital Sialkot. The sample size was calculated using open Epi-tool software as; estimated true proportion (0.5), desired precision (0.05), and confidence level (0.95). The sample size found was (n=218).[11] The study sample was collected using a convenient sampling technique. inclusion criteria were set as lactating mothers with a history of neck pain in breastfeeding sessions to the child, age (18 to 40 years) [12], opting cross cradle and cradle hold breastfeeding positions whereas lactating mothers with known orthopedic congenital condition of neck and spine and psychological distress were excluded from the study. The data was collected from 204 patients who met the recruitment criteria in the study period. The self-structured questionnaire and numeric pain rating scale (NPRS) were used as an outcome-measuring tool. Self-structured section of the questionnaire comprised of demographic and breastfeeding-related features from lactating mothers including gravida, breast feeding children, post-partum time span, opted breastfeeding position, frequency of nursing sessions per day, time of musculoskeletal neck pain occurrence and reduction of pain with the change of posture. The second section of the questionnaire was a numeric pain rating scale which was reliable and valid tool [13] to inquire about the intensity of pain. The pain scale ranging from 0 to 10 had 4 parameters; '0' for no pain, '1-3' for mild pain, '4-6' for moderate, '7-9' for severe, and '10' for very severe respectively.

The study participants were informed of the questions in both Urdu and English languages as per their language proficiency and that they could abort from study at any stage. After the informed consent participants were inquired. The collected data was analyzed using SPSS software version 22. Descriptive statistics were used to present the data. An Independent t-test was used to compare the two groups (Group A: lactating mothers with cradle-hold breastfeeding position) and (Group B: lactating mothers with cross-cradle-hold breastfeeding position) for musculoskeletal neck pain respectively.

Results

The total respondents with breastfeeding (BF) positions related to musculoskeletal neck pain (n=204), Breast feeding positions among lactating mothers with cradle hold BF position (group A) and cross cradle hold BF position (group B) were shown (Figure No.I).

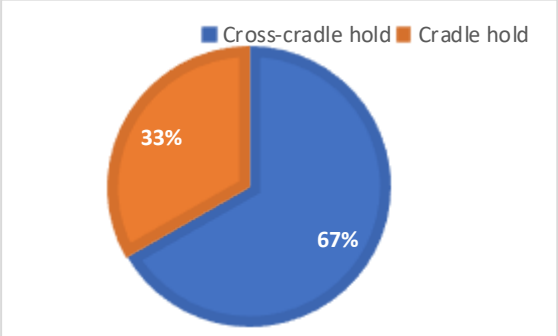

Figure No. I Breast feeding positions among lactating mothers (n=204)

Table I: Demographics and breastfeeding positions related characteristics among lactating mothers.			
		Cradle hold BF Group A (N=68)	**Cross cradle hold BF Group B (N=136)**
Age of lactating mothers		29.83yr ± S.D 3.78	28.61yr ± S.D 4.76
Gravida		2.2 ± S.D 1.19	2.00 ± S.D 1.17
Type of delivery	Normal	20 (29.4%)	47 (34.6%)
	Caesarian section	41 (60.3%)	72 (52.9%)
	Spontaneous vaginal delivery with episiotomy	7 (10.3%)	17 (12.5%)
Post-partum time span	1-3 months	24 (35.3%)	38 (27.9%)
	4-6 months	18 (26.5%)	27 (19.9%)
	7-9 months	11 (16.2%)	21 (15.4%)
	≥10 months	15 (22.1%)	50 (36.8%)
Breast feeding children	1 child	48 (70.6%)	84 (61.8%)
	2-4 children	19 (27.9%)	45 (33.1%)
	≥5 children	1 (1.5%)	7 (5.1%)
Child exclusively on breast feeding	Yes	32 (47.1%)	89 (65.4%)
	No	36 (52.9%)	47 (34.5%)
Frequency of nursing session / day	1-3 nursing session	21 (30.9%)	29 (21.3%)
	4-6 nursing session	22 (32.4%)	53 (39.0%)
	7-9 nursing session	22 (32.4%)	34 (25.0%)
	≥10 nursing session	3 (4.4%)	20 (14.7%)
Exercise sessions 5 times/ week	Yes	36 (52.9%)	46 (33.8%)
	No	32 (47.1%)	90 (66.2%)

The mean age of lactating mothers among participants of group A was 29.83yr ± S.D 3.78 and in group B was 28.61yr ± S.D 4.76. The type of delivery in most lactating mothers among group A (N=41, 60.3%) and in group B (N=72, 52.9%) had caesarian sections. The post-partum time span in most of the participants in group A was 1-3 months (N=24, 35.3%) whereas in group B was ≥ 10 months (N=50, 36.8%) respectively. Among participants in group A most of lactating mother's children were not exclusively on breastfeeding (N=36, 52.9%) whereas in group B (N=89, 65.4%) respondents had their children exclusively on breastfeeding. Among participants of group A most lactating mothers (N= 36, 52.9%) responded to exercise sessions 5 times/week whereas in group B most of the participants (N= 90, 66.2%) responded 'No' to routine exercise. Demographics and BF positions-related characteristics among lactating were shown in (Table No. I).

Time of occurrence of MSK neck pain among respondents in group A and B was 'both' during and after nursing sessions as (N=34, 50.0%) and (N=63, 46.3%) respectively. Numeric pain rating scale (NPRS) showed most of participants in both groups had 'very severe' responses for cradle hold BF as (N=36, 52.94%) and cross-cradle hold BF as (N=48, 35.29%) respectively. (Table No II) showed breast feeding positions related MSK neck pain characteristics and numeric pain rating scale among lactating mothers.

Table II: Breast feeding positions related MSK neck pain characteristics and numeric pain rating scale among lactating mothers.			
		Cradle hold BF Group A (N=68)	**Cross cradle hold BF Group B (N=136)**
Time of occurrence of Musculoskeletal neck pain	During nursing session	19 (27.9%)	43 (31.6%)
	After nursing session	15 (22.1%)	30 (22.1%)
	Both	34 (50.0%)	63 (46.3%)
Pain reduction with change of breast-feeding posture	Yes	40 (58.8%)	71 (52.2%)
	No	28 (41.2%)	65 (47.8%)
Numeric Pain rating scale	No pain	0 (0%)	0 (0%)
	Mild	7 (10.29%)	26 (19.11%)
	Moderate	5 (7.35%)	29 (21.32%)
	Severe	20 (29.41%)	33 (24.26%)
	Very severe	36 (52.94%)	48 (35.29%)

Independent t-test showed a significant difference of p-value= 0.00 at significance level 0.05 respectively (Table No.3). Comparing the means of both groups, lactating mothers with cradle hold BF position-related MSK neck pain (group A) were more affected than cross cradle hold BF position related MSK neck pain (group B).

Table III: Independent t-test.				
	Breastfeeding positions among lactating mothers	**N**	**Mean ± SD**	**P-value**
Numeric pain rating scale	Cradle hold	68	3.25 ± 0.98	0.00*
	Cross cradle hold	136	2.75 ± 1.13	
Significance level (p= 0.05*)				

Discussion

This Pakistani study explored how frequent breastfeeding stances affected musculoskeletal issues. The most typical position, which has been linked to mechanical neck pain, was found to be the cradle hold, although other postures revealed some musculoskeletal issues related to nursing positioning. By

using the arm to the breast, the infant is held in the cradle posture across the knee. For newborns who have problems latching on or who are very little, this position is preferred.

The statistical analysis of the independent t-test showed that a significant difference was found among positions of breastfeeding (p-value ≥ 0.00). Another quasi-experimental study was conducted in 2023 the results showed that the mean age of the participants was (SD=5.65), According to the results of paired t-test there was a statistically significant difference in the efficiency of breastfeeding using the standard cross cradle hold position and using the cradle hold position with breastfeeding (t=4.32,p>0.00)[14] The current study suggested that NPRS showed breastfeeding positions related to musculoskeletal neck pain was felt as very severe in group A (N=36 (52.94%), group B (N=48 (35.29%) among lactating mothers. A similar study conducted in 2019 took 104 participants equally distributed into two groups I and group II.

The interpretations of the study showed that neck pain was significantly associated with breastfeeding positions (p-value>0.03) [15] The findings of the present study indicated that in different breastfeeding positions, musculoskeletal neck pain was commonly present in nursing mothers the high prevalence of Child exclusively breastfeeding in cross cradle hold position was (N=89 (65.4%) and other positions that cradle hold was(N= 32 (47.1%). Another study organized in the Somali region state of Ethiopia took two groups Group I and Group II. The results of the study showed that the mean age of Group I was 25.64 and the mean age of Group II was 25.49 exclusive breastfeeding was associated with neck pain among nursing mothers an essential component of child growth that took infants 3-5 months.[16] A current study demonstrated that neck pain was a statistically significant difference found among lactating mothers in both breastfeeding positions cradle hold and cross cradle hold. The results showed a high prevalence of neck pain in both positions related to postpartum duration ≥10 months in group I was N=15(22.1%) and in group II was N=50(36.8%) Another study conducted in 2022 with cluster random sampling technique used took 119 postpartum participants in Pakistan the finding of the study indicated that neck pain was significantly present in women addressed after delivery span that was N=62(52.10%) the findings of this study correlated with our study as well.[17] The results of the present study determined that the prevalence of the type of delivery was Caesarian section related to neck pain among breastfeeding positions in group I was N=41(60.3%) and group II N=72(52.9%) contrast, other longitudinal studies organized in China 2022 recruited 468 women the statistical analysis shows the prevalence of Caesarian section among lactating mothers was N=182(82.0%).[18] Current study results showed that most women complained of neck pain after postpartum duration ≥ 10 months Statistically significant results of postpartum span related to musculoskeletal neck pain among breastfeeding positions Group A was N=15(22.1%), Group B was N=50(36%). In contrast other study conducted in 2013 took 308 postpartum women the results of this study showed that most common area of pain was neck pain highly significant in postpartum mothers (P-value ≥0.003).[19] The result of the present study showed that the cradle hold position was the most commonly used during nursing A significant difference was found among breastfeeding positions study showed a result that was organized in 2021.

Mothers participated (250) in this study with C-section to compare two main nursing positions: cradle hold and football. The results of this study showed that with a mean age was 25.7±5.8 the most preferred breastfeeding position was N=50(74.6%) cradle hold N=9(13.4%) football. Cradle hold position was associated with pain.[20] The results of the current study showed that a significant difference was found related to neck pain reduction with change of breastfeeding posture group A was N=40(58.8%) and group B was N=71(52.2%).In contrast, a descriptive cross-sectional study conducted in 2017 took 86 postpartum participants equally distributed in two groups with neck pain the results showed that no pain reduction after a change in BF posture no mean difference was found related to neck pain(-16.3%;95%CI=-32.3 to 0.3%). [21] The study showed results that in cradle hold BF position significantly higher in neck pain than cross cradle hold position difference found musculoskeletal problems related to breastfeeding position (P-value ≥0.000). Another study conducted at the University of Nigeria in 2020 the results of this study showed that cross cradle holding breastfeeding position related to neck pain among lactating mothers.[22] The study recommends future research for lactating mothers adopting skeletal alignment in focus reduces stress on spine and neck muscles, and low back. Nursing mothers should regularly change breast feeding position to increase relaxation and comfort.

Conclusion

It was concluded in this study that there was a high prevalence of lactating mother's adapting cross cradle position during breast feeding neck pain.

References

1. Patyal N. A hospital-based study on complementary feeding knowledge among postnatal mothers in district Kangra, Himachal Pradesh. Himalayan J Nurs Midwifery. 2020 Jul 10;1(4).
2. Tello B, Rivadeneira MF, Moncayo AL, Buitrón J, Astudillo F, Estrella A, et al. Breastfeeding, feeding practices and stunting in indigenous Ecuadorians under 2 years of age. Int Breastfeed J. 2022 Mar 5;17(1):19. https://doi.org/10.1186/s13006-022-00461-0

3. Yuan TP, Purushothaman VK, Muniandy Y, Pillai SG. Prevalence and factors associated with neck and low back pain among breastfeeding mothers in the Klang Valley. J Health Transl Med (JUMMEC). 2022 Oct 11;25(2):129-34.
4. Vázquez-Osorio IM, Vega-Sánchez R, Maas-Mendoza E, Heller Rouassant S, Flores-Quijano ME. Exclusive breastfeeding and factors influencing its abandonment during the first month postpartum among women from semi-rural communities in Southeast Mexico. Front Pediatr. 2022 Feb 18;10:124. https://doi.org/10.3389/fped.2022.826295
5. Rani S, Habiba UE, Qazi WA, Tassadaq N. Association of breastfeeding positioning with musculoskeletal pain in postpartum mothers of Rawalpindi and Islamabad. J Pak Med Assoc. 2019 Apr;69:564-6.
6. Ezeukwu OA, Ojukwu CP, Okemuo AJ, Anih CF, Ikele IT, Chukwu SC. Biomechanical analysis of the three recommended breastfeeding positions. Work. 2020 Jan 1;66(1):183-91.
7. Ojukwu CP, Okpoko CG, Okemuo AJ, Ede SS, Ilo IJ. Breastfeeding-related neck pain: prevalence and correlates among Nigerian lactating mothers. Int Health. 2022 Jul 23.
8. Farooq R, Khalid M, Murtaza S, Aziz M, Khalid A, Hassan Z. Knowledge of breastfeeding positioning among primigravida mothers. Pak J Med Health Sci. 2023 Mar 24;17(3):100.
9. Bency G, Maria P, Anusuya VP. Comparison of maternal comfort between two breastfeeding positions. Int J Nurs Educ. 2014;6(1):112.
10. Dalal R, Fancy MK, Chaudhary S, Abraham M, Vir SC, Gaurav S. Establishment of cross-cradle hold technique combined with intensive breastfeeding counselling positively impacts the weight gain rate in early infancy. Matern Child Nutr. 2023 May 15
11. Dean AG, Sullivan KM, Soe MM. OpenEpi: Open source epidemiologic statistics for public health, version. www.OpenEpi.com, updated 2013/04/06, accessed 2024/01/15.
12. Naik SA, Naik AS, Patel SA, Patel RA. A retrospective study of breastfeeding practices in the first six months of lactation among mothers in a metropolitan city. J Med Sci. 2021 Sep;7(3):26.
13. Young IA, Dunning J, Butts R, Mourad F, Cleland JA. Reliability, construct validity, and responsiveness of the neck disability index and numeric pain rating scale in patients with mechanical neck pain without upper extremity symptoms. Physiother Theory Pract. 2019 Dec 2;35(12):1328-35.
14. Disorntatiwat P, Steen M, Liblub S. A quasi-experimental study to compare effectiveness of a breastfeeding arm sling with normal breastfeeding cross-cradle hold position. medRxiv. 2023 Jan 25:2023-01.
15. Afshariani R, Kiani M, Zamanian Z. The influence of ergonomic breastfeeding training on some health parameters in infants and mothers: a randomized controlled trial. Arch Public Health. 2019 Dec;77:1-0.
16. Tadesse F, Alemayehu Y, Shine S, Asresahegn H, Tadesse T. Exclusive breastfeeding and maternal employment among mothers of infants from three to five months old in the Fafan zone, Somali regional state of Ethiopia: a comparative cross-sectional study. BMC Public Health. 2019 Dec;19:1-9.
17. Asif A, Amjad F, Dastgir H, Asif W, Adil A, Afzal M. Prevalence of neck and low back pain in women during postpartum period. Healer J Physiother Rehabil Sci. 2022;2(4):271-8.
18. Cenat JM, Farahi SM, Dalexis RD, Darius WP, Bekarkhanechi FM, Poisson H, et al. The global evolution of mental health problems during the COVID-19 pandemic: a systematic review and meta-analysis of longitudinal studies. J Affect Disord. 2022 Oct 15;315:70-95.
19. Mbada CE, Olowookere AE, Faronbi JO, Oyinlola-Aromolaran FC, Faremi FA, Ogundele AO, et al. Knowledge, attitude and techniques of breastfeeding among Nigerian mothers from a semi-urban community. BMC Res Notes. 2013 Dec;6:1-8.
20. Lian W, Ding J, Xiong T, Liuding J, Nie L. Determinants of delayed onset of lactogenesis II among women who delivered via Cesarean section at a tertiary hospital in China: a prospective cohort study. Int Breastfeed J. 2022 Dec;17(1):1-5.
21. Pereira TR, De Souza FG, Beleza AC. Implications of pain in functional activities in immediate postpartum period according to the mode of delivery and parity: an observational study. Braz J Phys Ther. 2017 Jan 1;21(1):37-43.
22. Ezeukwu OA, Ojukwu CP, Okemuo AJ, Anih CF, Ikele IT, Chukwu SC. Biomechanical analysis of the three recommended breastfeeding positions. Work. 2020 Jan 1;66(1):183-91.